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BEFORE THE ARIZONA CORPORATION COMMISSION RECEIVED

WILLIAM A. MUNDELL
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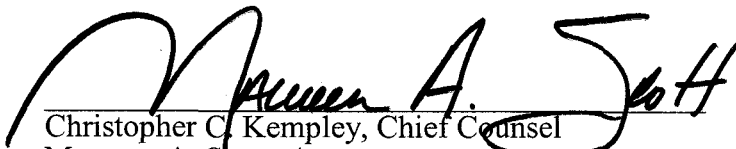
IN THE MATTER OF INVESTIGATION
INTO U S WEST COMMUNICATION,
INC.'S COMPLIANCE WITH CERTAIN
WHOLESALE PRICING REQUIREMENTS
FOR UNBUNDLED NETWORK ELEMENTS
AND RESALE DISCOUNTS.

DOCKET NO. T-00000A-00-0194

NOTICE OF FILING STAFF'S
PHASE II-A SWITCHING
REBUTTAL TESTIMONY

Arizona Corporation Commission Staff ("Staff") hereby files the redacted rebuttal testimony of William Dunkel; in the above-referenced matter. Unredacted versions are being provided to the Hearing Division and those parties who are signatories to the Protective Agreement herein.

RESPECTFULLY SUBMITTED this 27th day of September, 2001.



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The Original and ten (10) copies
of the foregoing filed this 27th day of
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Public Version

Arizona Corporation Commission
DOCKETED

SEP 27 2001

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BEFORE THE
ARIZONA CORPORATION COMMISSION

IN THE MATTER OF INVESTIGATION)
INTO QWEST CORPORATIONS')
COMPLIANCE WITH CERTAIN WHOLESALE) DOCKET NO. T-00000A-00-0194
PRICING REQUIREMENTS FOR) PHASE II-A
UNBUNDLED NETWORK ELEMENTS)
AND RESALE DISCOUNTS)

DIRECT TESTIMONY AND SCHEDULES

OF

WILLIAM DUNKEL

ON BEHALF OF

THE STAFF OF THE ARIZONA CORPORATION COMMISSION

SEPTEMBER, 2001

PUBLIC COPY

1 **I. STATEMENT OF QUALIFICATIONS AND INTRODUCTION**

2

3 Q. PLEASE STATE YOUR NAME AND YOUR BUSINESS ADDRESS.

4 A. My name is William Dunkel. My business address is 8625 Farmington Cemetery Road,
5 Pleasant Plains, Illinois 62677.

6

7 Q. WHAT IS YOUR PRESENT OCCUPATION?

8 A. I am a consultant providing services in telephone rate proceedings. I am the principal of
9 William Dunkel and Associates, which was established in 1980. Since that time, I have
10 regularly provided consulting services in telephone regulatory proceedings throughout
11 the country. I have participated in over 130 state regulatory telephone proceedings before
12 over one-half of the state commissions in the United States, as shown on Appendix A
13 attached hereto. I have participated in telephone regulatory proceedings for over 20
14 years.

15

16 I currently provide, or in the past have provided, services in telecommunications
17 proceedings to the following clients:

18 The Public Utility Commission or the Staffs in the States of:

19	Arkansas	Missouri
20	Arizona	New Mexico
21	Delaware	U.S. Virgin Islands
22	Georgia	Utah
23	Guam	Virginia
24	Illinois	Washington
25	Maryland	Kansas
26	Mississippi	

27

28

29 The Office of the Public Advocate, or its equivalent, in the States of:

Colorado	Missouri
District of Columbia	New Jersey
Georgia	New Mexico
Hawaii	Ohio
Illinois	Oklahoma
Indiana	Pennsylvania
Iowa	Utah
Maine	Washington
Florida	

The Department of Administration in the States of:

Illinois	South Dakota
Minnesota	Wisconsin

Q. ON WHOSE BEHALF ARE YOU TESTIFYING?

A. I am testifying on behalf of the Staff of the Arizona Corporation Commission (ACC).

Q. HAVE YOU PREVIOUSLY PARTICIPATED IN ANY PROCEEDINGS IN ARIZONA?

A. Yes. Most recently, I filed testimony on behalf of the ACC Staff in Phase II of this proceeding, Docket No. T-00000A-00-0194. In addition, I filed testimony on behalf of the ACC Staff in the general rate case, Docket No. T-01051B-99-0105. I also filed rebuttal testimony in Docket No. T-01051B-97-0689 on behalf of the ACC Staff regarding depreciation. In addition, I conducted a Cost of Service Study on behalf of the Staff of the Arizona Corporation Commission in an undocketed matter preparing a cost study pertaining to Qwest Corporation (formerly US West Communications (USWC)). I was a rate design witness in general rate case, Docket No. E-1051-93-183, involving USWC on behalf of the ACC Staff.

1 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

2 A. By agreement among several of the parties, certain issues in Phase II were deferred to this
3 phase (Phase II-A) of this proceeding. The purpose of my testimony is to present Staff's
4 recommendation pertaining to the issues that are being addressed in this phase of this
5 proceeding. In addition, I will respond to the Direct testimony filed by Qwest in this
6 phase of this proceeding.

7
8 **II. STAFF RECOMMENDATION**

9 Q. WHAT RATES DOES STAFF RECOMMEND FOR THE SERVICES BEING
10 ADDRESSED IN PHASE II-A OF THIS PROCEEDING?

11 A. The rates that Staff recommends are shown on Schedule WD-1 attached hereto.

12
13 **III. MODEL USED AND INPUTS**

14 Q. WHAT MODEL DID STAFF USE IN ARRIVING AT THE STAFF RECOMMENDED
15 RATES?

16 A. Staff used the same model it used in Phase II of this proceeding, which is the HAI 5.2a
17 model (Hatfield).

18
19 Q. PRIOR TO THIS PROCEEDING, THE ACC HAD ESTABLISHED UNE RATES IN
20 DECISION NO. 60635 DATED JANUARY 30, 1998.¹ WHAT MODEL DID THE
21 ACC RELY ON IN THAT DECISION?

22 A. Throughout that Decision, the ACC repeatedly relied on the Hatfield model. In addition,
23 the usage portion of the FCC Synthesis Model relies heavily on the HAI model.

¹ Docket No. U-3021-96-448 et. al.

1

2 Q. WHAT INPUTS TO THE MODEL DID STAFF UTILIZE?

3 A. Staff used the inputs that the ACC had chosen in its Decision No. 60635. In that
4 Decision, the ACC adopted a number of input values. For example, the ACC adopted
5 50% support facilities sharing with other utilities.² In this proceeding, I used those same
6 input values as determined by the ACC. For those inputs that were not addressed by the
7 ACC in Decision No. 60635, I used the inputs as determined by the FCC. The FCC held
8 extensive proceedings to determine the appropriate input values. As a result of that
9 extensive analysis, the FCC in its 10th Order specified the values to be used for model
10 inputs. (Order FCC 99-304) The FCC used those input values in the FCC Model that
11 was used to determine the amount of federal universal service support for non-rural
12 carriers. There are hundreds of inputs to these models. The inputs Staff utilized are the
13 inputs that have been determined to be appropriate by the regulators. In Phase II, Staff
14 also utilized the HAI 5.2a model, used the ACC approved inputs, and used the FCC
15 inputs for those items that the ACC had not addressed. The costs that result from using
16 the ACC and FCC inputs in the HAI 5.2a model are shown on Schedule WD-2.

17

18

IV. OVERHEAD COSTS

19 Q. WHAT TREATMENT OF OVERHEAD COST DOES STAFF PROPOSE?

20 A. Staff recommends the same treatment of overhead cost that it recommended in Phase II
21 of this proceeding. As Staff discussed in Phase II of this proceeding, there are a number
22 of problems with the expenses as proposed by Qwest. In Decision No. 60635, the ACC
23 selected a 15% overhead factor. This 15% factor included the attributed, joint and

1 common overhead costs. The Arizona Court in the Jennings order did not remand that
2 15% factor.³

3
4 I recommend that the 15% overhead factor adopted by the Commission in Decision No.
5 60635 be used in this proceeding. This factor is applied to the “direct” cost. This 15%
6 factor specifically includes what Qwest calls the “attributed,” and “common” costs.

7
8 In the prior Phase II of this proceeding, Qwest tried to claim that the 15% factor includes
9 only “common” overhead, and did not include the “attributed” costs. However, this
10 Qwest position misstates the Commission Order. The Commission Order specifically
11 stated:

12 Therefore, we will adopt an overhead cost factor, including attributed, joint and
13 common costs, of 15 percent.⁴
14

15 In addition to the clear wording of the ACC’s Order, it was also apparent from the
16 discussion in the Order that this Commission’s selected factor did include the attributed
17 cost. For example,

18 In its Reply Brief, U S WEST claimed that only the 5 percent factor was
19 overhead, while the 22 percent is attributed costs.⁵
20

21 This makes it very clear that the 15% factor does not include just the “common” costs,
22 because Qwest itself stated that the “common” cost was only 5%. Clearly, the 15%
23 factor includes more than just the “common” costs.

² Page 20, ACC Decision No. 60635.

³ Jennings, 46 F. Supp. 2d 1004, 6, May 4, 1999 hereinafter referred to as the “Jennings Order.”

⁴ Page 13, Decision No. 60635.

⁵ Page 12, Decision No. 60635.

1
2 The factors that Qwest used in its cost studies in this proceeding generally result in a
3 ** ** overhead increase over the direct costs. This difference in overhead by itself
4 would result in a Staff recommended rate that is ** ** below the Qwest
5 recommended rate, in addition to any other differences other than overhead that may
6 exist.⁶
7

8 Q. WHAT COST OF MONEY DID STAFF UTILIZE?

9 A. Staff used the 9.61% overall cost of money and associated capital structure from the
10 ACC's March 30, 2001 decision in the general rate proceeding, Decision No. 63487.
11 Qwest's testimony in this phase of this proceeding states they also utilized the 9.61%
12 overall cost of money from that Commission Decision.⁷
13

14 Q. WHAT DEPRECIATION RATES DID STAFF UTILIZE?

15 A. Staff utilized the depreciation rates that are calculated using the lives, net salvage, and
16 other parameters as determined by the ACC in the most recent depreciation case, Docket
17 No. T-01051B-97-0689.
18

19 V. FILL FACTOR

20 Q. WHAT FILL FACTOR DID QWEST USE IN ITS COST STUDIES?

21 A. The fill factors that Qwest used varied. Qwest used fill factors as low as ** **. ⁸

⁶ $(100 \text{ direct} + 15 \text{ overhead (ACC Staff)}) / (100 \text{ direct} + ** ** \text{ overhead (Qwest)}) = 115 / ** ** =$
** ** of Qwest rate.

⁷ Brigham Direct, Phase II-A, page 7, line 14.

⁸ Page 7, Qwest Cost Study 5635 Collocation: Remote Terminal, "Space Utilization Factor."

1
2 In Decision No. 60635, the ACC did not address all fill factors, but for the fill factors that
3 it did address, the ACC selected fill factors that were significantly higher than what
4 Qwest has proposed. In that prior case, Qwest had claimed that for cable “approximately
5 35% of its plant is currently in use.”⁹ The Commission adopted the fill factors that were
6 used in the Hatfield model, which were 71.5% for feeder, and approximately 51% for
7 distribution cable, after sizing for standard cables was considered.¹⁰ For similar reasons,
8 Staff believes Qwest’s use of the ** ** fill factor in the current study is inappropriate.
9 Staff has replaced it with a 61.25% fill factor to be more consistent with the prior ACC
10 Order.¹¹
11

12 **VI. OTHER QWEST ERRORS**

13 **Q. WERE THERE OTHER ERRORS IN QWEST’S STUDIES?**

14 **A. Yes.** In the cost studies Staff reviewed in detail, there were other obvious errors that
15 improperly increased the cost. For example, the “Collocation: Remote Terminal” cost
16 study includes a calculation of the cost of a “cabinet” that would be installed outdoors.
17 That cabinet would house certain equipment. That “cabinet” is in effect the “building”
18 for the equipment that it houses. However, the Company increased that cabinet
19 investment by a “building” factor. Such “building” factors are the way that the cost of
20 the buildings that house equipment are added onto the cost of the equipment. Therefore,
21 Qwest calculated the cost of the cabinet, which is a form of a “building”, and then

⁹ Page 16, Decision No. 60635.

¹⁰ Page 16, Decision No. 60635.

¹¹ This is the average of the 71.5% and 51% fill factors that the Commission found to be appropriate.

1 increased that as if that outdoor cabinet was inside a building. It is not. Qwest is
2 effectively double charging for the building/cabinet.

3
4 Q. HAVE YOU CORRECTED THE COLLOCATION: REMOTE TERMINAL STUDY
5 FOR THE ABOVE-REFERENCED PROBLEMS?

6 A. My revised calculation:

- 7 1. Changes the space utilization factor from Qwest's ** ** factor to 61.25%;
- 8 2. Utilizes the 15% overhead factor. The Qwest factors had the effect of increasing
9 the costs by approximately ** ** for overheads.
- 10 3. Eliminates the building factors, since that cost was already directly included as
11 the cost of the cabinet (which is effectively the building).
- 12 4. Uses the cost of money and income tax factors that are based upon a 9.61% cost
13 of money, and used the depreciation expense that is determined using the Commission
14 prescribed depreciation parameters. In some cases, the factors that Qwest used were
15 slightly different than the figures that are properly calculated using these inputs.

16
17 The result of this analysis is a Staff proposed non-recurring charge of \$406.50 for remote
18 collocation "space" (per standard mounting unit) as compared to Qwest's proposed rate
19 of \$868.13.¹² The corrected recurring rate for this item is 63 cents, as compared to
20 Qwest's proposal of \$1.35, as is shown on Schedule WD-3.

21
22

¹² Qwest Exhibit RHB-1, page 1, Item 8.8, attached to Mr. Brigham's Direct testimony in Phase II-A.

1 **VII. NON-RECURRING RATES**

2 Q. WHAT HAS QWEST PROPOSED FOR NON-RECURRING RATES?

3 A. As shown on Qwest Exhibit RHB-1, Qwest has proposed numerous non-recurring rates.

4 For example, for the first Analog Port¹³, Qwest proposes a non-recurring charge of
5 \$145.57. Qwest's non-recurring cost studies generally consist of presenting estimates of
6 the time that each function would be required, multiplied by the loaded labor rate. Qwest
7 weights the cost by Qwest's estimate of the "probability" that function would occur. For
8 example, the Qwest non-recurring cost study for the "Analog Port" is attached as
9 Schedule WD-4.

10
11 Because some of the key inputs are based upon one's best judgement, the resulting cost
12 results may vary greatly. For example, for the "Analog Port" Qwest alleges a non-
13 recurring cost of ** **, whereas AT&T/Worldcom/XO (Joint Intervenors)
14 determined the non-recurring installation cost for the same item is \$1.68.¹⁴ Qwest cost
15 studies generally assume a relatively large amount of manual order activities by Qwest
16 personnel, whereas the Joint Intervenors assume automated data transfer from the CLECs
17 to Qwest.

18
19 It certainly appears that some of the time estimates and probabilities that Qwest has
20 assumed are on the high side. For example, as shown on page 2 of Schedule WD-4,

¹³ Analog Line Side Port, first port. Qwest Exhibit RHB-1, page 1.

¹⁴ Exhibit RL-2, line 36, attached to Mr. Lathrop's Direct testimony in Phase II of this proceeding. Also see page 20 of Exhibit MH-1R attached to the Summary Testimony of Michael Hydock in Phase II of this proceeding. AT&T calculates the disconnect separately, as being \$1.57 non-recurring. Even if the installation and disconnect are considered together, as Qwest does, the non-recurring cost for the installation and disconnection of an Analog Port is either \$3.25 using AT&T's cost analysis, or
** ** using Qwest's cost analysis.

1 Qwest assumed that it would require an average of ** ** of manual effort to
2 "obtain telephone numbers", with a probability of "one." (The probability of "one"
3 means this function would always occur.) It certainly is logical that obtaining a
4 telephone number is a procedure that could be computerized.
5

6 On the other hand, the Joint Intervenor's non-recurring numbers are very likely on the low
7 side. They assume the computerized interface between the CLECs and Qwest operates
8 with virtually no fallout that requires manual processing. Certainly an automated
9 interface is the goal, but I do not believe it is reasonable to assume virtually 100%
10 successful automated interface. In my opinion, the correct number is between the Joint
11 Intervenor's and Qwest numbers. Since the goal is to have a computer interface between
12 the CLECs and Qwest, I believe the appropriate non-recurring costs are closer to the Joint
13 Intervenor's numbers than to Qwest's numbers. The reasonable assumption is an
14 automated interface with some minor percent falling out, (and therefore requiring manual
15 intervention). The Joint Intervenor's study is closer to this than is Qwest's study.

16 Qwest's study assumes significant manual effort required on all orders, and includes very
17 large time estimates for those manual functions, such as the previously referenced **

18 ** to "obtain telephone numbers." The current non-recurring charge for the
19 analog line port is \$42.58. This is clearly within the range the above analysis produces.
20 Therefore, I recommend the current non-recurring rate of \$42.58 for the analog port be
21 continued, as is shown on Schedule WD-5.¹⁵
22

1 The current rate is approximately 30% of the rate that Qwest has proposed. It is also
2 several times the rate that the Joint Intervenors propose.

3
4 It should be noted that the all rates (including non-recurring) should be at least ** **
5 below the Qwest proposal, as a result of replacing the overhead factors that Qwest used
6 with the ACC ordered 15% overhead factor, as previously discussed.

8 VIII. FEATURES

9 Q. PLEASE COMMENT ON THE CURRENT FEATURE RATES.

10 A. Currently, the interconnection rates in effect for Qwest in Arizona include the cost
11 of features in the "port" recurring cost, and include no additional recurring charge for
12 features. There is also generally no separate non-recurring charge for features. In Phase
13 II of this proceeding, certain intervenors proposed the continuation of this practice. In
14 Phase II, the sponsors of the HAI (Hatfield) model stated that the feature cost was already
15 incorporated in the "port" cost in the HAI model, and therefore they believed no
16 additional charge for features was appropriate.¹⁶

17
18 In its past filings in Phase II, Qwest proposed recurring rates for features, but in its filing
19 in this Phase II-A, Qwest has proposed no non-recurring charges for features, but instead
20 proposes to include the feature costs in the port rate.¹⁷

¹⁵ If there is a concern that some CLECs might fax in orders instead of using the more efficient electronic interface, a lower rate could be established for those orders that are presented through the electronic interface, with a higher rate for those orders that are sent to Qwest from the CLECs by fax.

¹⁶ Page 43, Hydock Direct; Page 31, Denney Direct; Phase II.

1 Staff proposes to continue the current practice of incorporating the feature cost into the
2 port charge, thereby requiring no separate recurring charge for features.

3
4 Therefore, the key question becomes how much additional cost, if any, should be added
5 into the port cost that is calculated using the HAI model. The HAI port cost includes the
6 cost of at least the initial programming for features, according to the parties presenting
7 the HAI model.¹⁸ The switching inputs that the FCC adopted include the costs incurred
8 at installation, and within three years of installation, but do not include later upgrades.¹⁹
9 The FCC expenses are based on actual expenses.

10
11 Qwest's Exhibit RHB-3 shows the summary of the additional costs that Qwest proposes
12 to include in the recurring port charge for features. Exhibit RHB-3 shows Qwest includes
13 significant costs for "Centrex 21" features. However, the list of services that are being
14 offered to the CLECs, as shown on Exhibit RHB-1, does not show "Centrex 21" as being
15 one of the services being offered. Therefore, "Centrex 21" costs should not be included
16 in any additional features cost. In addition, Qwest calculates the feature cost per line
17 from the one study as 65 cents per line.²⁰ Qwest also calculates a 51 cent feature cost
18 from a different study. The cost studies that Qwest provided do not provide any
19 explanation as to why the sum of these two calculations of features should be added to
20 the port costs that are derived from the Hatfield model, which already includes some
21 feature costs. Another problem is that in its "Capital Lease" study, the Company uses a

¹⁷ Qwest Exhibit RHB-1 attached to Mr. Brigham's Direct testimony in Phase II-A.

¹⁸ Page 31, Denney Direct, Phase II.

¹⁹ Paragraphs 295 and 301, FCC Order 99-304 (Tenth Order and Report, CC Docket No. 96-45, 97-160).

²⁰ See Qwest Exhibit RHB-3.

1 factor which marks up direct costs by approximately ** ** for overheads. I believe a
2 15% markup for attributed, joint, and common costs, which the Commission ordered in
3 Decision No. 60635, is appropriate, as discussed elsewhere.
4

5 Q. WHAT ADDITIONAL COSTS DO YOU RECOMMEND BE ADDED FOR
6 FEATURES TO THE "PORT" COSTS AS DETERMINED FROM THE HAI MODEL?

7 A. As the above discussion demonstrates, I believe the appropriate number is below Qwest's
8 proposed addition, but greater than the Joint Intervenors' proposal, which in Phase II was
9 no addition. The current recurring charge for the Analog Line Side Port is \$1.61.²¹ The
10 recurring port cost as calculated from the Hatfield model utilizing the ACC and FCC
11 inputs is \$1.10 per month per line, as shown on Schedule WD-2 attached hereto. If the
12 current rate was continued, this would effectively include a 51 cent per line per month
13 allowance for the cost of providing features, above the feature cost that is already
14 included in the HAI port cost. This is a reasonable figure that is well within the range
15 established by the other parties in this proceeding. There is no valid reason from the
16 evidence in the record to modify this rate. Staff recommends the current recurring rate of
17 \$1.61 for line port be continued. This rate includes feature costs. Therefore, no
18 additional recurring charge for features should be imposed.
19

20 IX. CONCLUSION

21 Q. WHAT DO YOU RECOMMEND?

22 A. I recommend that the ACC adopt the rates shown on Schedule WD-1 for the reasons set
23 forth above.

1

2 Q. DOES THIS CONCLUDE YOUR TESTIMONY?

3 A. Yes.

²¹ Schedule WD-17 attached to Rebuttal testimony of William Dunkel in Phase II.

William Dunkel, Consultant
8625 Farmington Cemetery Road
Pleasant Plains, Illinois 62677

Qualifications

The Consultant is a consulting engineer specializing in telecommunication regulatory proceedings. He has participated in over 140 state regulatory proceedings as listed on Appendix A attached hereto.

The Consultant has provided cost analysis, rate design, jurisdictional separations, depreciation, expert testimony and other related services to state agencies throughout the country in numerous telecommunication state proceedings. The Consultant has also provided depreciation testimony to state agencies throughout the country in several electric utility proceedings.

The Consultant made a presentation pertaining to Video Dial Tone at the NASUCA 1993 Mid-Year Meeting held in St. Louis.

In addition, the Consultant also made a presentation to the NARUC Subcommittee on Economics and Finance at the NARUC Summer Meetings held in July, 1992. That presentation was entitled "The Reason the Industry Wants to Eliminate Cost Based Regulation--Telecommunications is a Declining Cost Industry."

The Consultant provides services almost exclusively to public agencies, including the Public Utilities Commission, the Public Counsel, or the State Department of Administration in various states.

William Dunkel currently provides, or in the past has provided, services in telecommunications proceedings to the following clients:

The Public Utility Commission or the Staffs in the States of:

Arkansas	Mississippi
Arizona	Missouri
Delaware	New Mexico
Georgia	Utah
Guam	Virginia
Illinois	Washington
Maryland	U.S. Virgin Islands

The Office of the Public Advocate, or its equivalent, in the States of:

Colorado	Maryland
District of Columbia	Missouri
Georgia	New Jersey
Hawaii	New Mexico
Illinois	Ohio
Indiana	Pennsylvania
Iowa	Utah
Maine	Washington

The Department of Administration in the States of:

Illinois	South Dakota
Minnesota	Wisconsin

In April, 1974, the Consultant was employed by the Illinois Commerce Commission in the Electric Section as a Utility Engineer. In November of 1975, he transferred to the Telephone Section of the Illinois Commerce Commission and from that time until July, 1980, he participated in essentially all telephone rate cases and other telephone rate matters that were set for hearing in the State of Illinois. During that period, he testified as an expert witness in numerous rate design cases and tariff filings in the areas of rate design, cost studies and separations. During the period 1975-1980, he was the Separations and Settlements expert for the Staff of the Illinois Commerce Commission.

From July, 1977 until July, 1980, he was a Staff member of the FCC-State Joint Board on Separations, concerning the "Impact of Customer Provision of Terminal Equipment on Jurisdictional Separations" in FCC Docket No. 20981 on behalf of the Illinois Commerce Commission. The FCC-State Joint Board is the national board which specifies the rules for separations in the telephone industry.

The Consultant has taken the AT&T separations school which is normally provided to the AT&T personnel.

The Consultant has taken the General Telephone separations school which is normally provided for training of the General Telephone Company personnel in separations.

Since July, 1980 he has been regularly employed as an independent consultant in telephone rate proceedings across the nation.

He has testified before the Illinois House of Representatives Subcommittee on Communications, as well as participating in numerous other schools and conferences pertaining to the utility industry.

Prior to employment at the Illinois Commerce Commission, the Consultant was a design engineer for Sangamo Electric Company designing electric watt-hour meters used in the electric utility industry. The Consultant was granted patent No. 3822400 for a solid state meter pulse initiator.

The Consultant graduated from the University of Illinois in February, 1970 with a Bachelor's of Science Degree in Engineering Physics with emphasis on economics and other business-related subjects. The Consultant has taken several post-graduate courses since graduation.

RELEVANT WORK EXPERIENCE OF
WILLIAM DUNKEL

ARIZONA

- | | |
|----------------------------|-----------------------------|
| - U.S. West Communications | Cost of Service Study |
| Wholesale cost/UNE case | Docket No. T-00000A-00-0194 |
| General rate case | Docket No. E-1051-93-183 |
| Depreciation case | Docket No. T-01051B-97-0689 |
| General rate case | Docket No. T-01051B-99-0105 |

ARKANSAS

- | | |
|---------------------------------------|---------------------|
| - Southwestern Bell Telephone Company | Docket No. 83-045-U |
|---------------------------------------|---------------------|

CALIFORNIA

(on behalf of the California Cable Television Association)

- | | |
|--|-------------|
| - General Telephone of California | I.87-11-033 |
| - Pacific Bell | |
| Fiber Beyond the Feeder Pre-Approval Requirement | |

COLORADO

- | | |
|-----------------------------------|----------------------------|
| - Mountain Bell Telephone Company | |
| General Rate Case | Docket No. 96A-218T et al. |
| Call Trace Case | Docket No. 92S-040T |
| Caller ID Case | Docket No. 91A-462T |
| General Rate Case | Docket No. 90S-544T |
| Local Calling Area Case | Docket No. 1766 |
| General Rate Case | Docket No. 1720 |
| General Rate Case | Docket No. 1700 |
| General Rate Case | Docket No. 1655 |
| General Rate Case | Docket No. 1575 |
| Measured Services Case | Docket No. 1620 |
| - Independent Telephone Companies | |
| Cost Allocation Methods Case | Docket No. 89R-608T |

DELAWARE

- | | |
|-----------------------------------|-----------------------|
| - Diamond State Telephone Company | |
| General Rate Case | PSC Docket No. 82-32 |
| General Rate Case | PSC Docket No. 84-33 |
| Report on Small Centrex | PSC Docket No. 85-32T |
| General Rate Case | PSC Docket No. 86-20 |
| Centrex Cost Proceeding | PSC Docket No. 86-34 |

DISTRICT OF COLUMBIA

- C&P Telephone Company of D.C.
Depreciation issues

Formal Case No. 926

FCC

- Review of jurisdictional separations

FCC Docket No. 96-45

FLORIDA

- BellSouth, GTE, and Sprint
Fair and reasonable rates

Undocketed Special Project

GEORGIA

- Southern Bell Telephone & Telegraph Co.
General Rate Proceeding
General Rate Proceeding
General Rate Proceeding
General Rate Proceeding

Docket No. 3231-U
Docket No. 3465-U
Docket No. 3286-U
Docket No. 3393-U

HAWAII

- GTE Hawaiian Telephone Company
Depreciation/separations issues
Resale case

Docket No. 94-0298
Docket No. 7702

ILLINOIS

- Geneseo Telephone Company
EAS case
- Central Telephone Company
(Staunton merger)
- General Telephone & Electronics Co.
Usage sensitive service case
General rate case (on behalf of CUB)
(Usage sensitive rates)
(Data Service)
(Certificate)
(Certificate)
- General Telephone Co.
- Ameritech (Illinois Bell Telephone Company)
Alternative Regulation Review
Area code split case
General Rate Case
(Centrex filing)
General Rate Proceeding
(Call Lamp Indicator)
(Com Key 1434)
(Card dialers)
(Concentration Identifier)

Docket No. 99-0412

Docket No. 78-0595

Docket Nos. 98-0200/98-0537
Docket No. 93-0301
Docket No. 79-0141
Docket No. 79-0310
Docket No. 79-0499
Docket No. 79-0500
Docket No. 80-0389

Docket No. 98-0252
Docket No. 94-0315
Docket No. 83-0005
Docket No. 84-0111
Docket No. 81-0478
Docket No. 77-0755
Docket No. 77-0756
Docket No. 77-0757
Docket No. 78-0005

ILLINOIS (CONT.)

(Voice of the People)	Docket No. 78-0028
(General rate increase)	Docket No. 78-0034
(Dimension)	Docket No. 78-0086
(Customer controlled Centrex)	Docket No. 78-0243
(TAS)	Docket No. 78-0031
(Ill. Consolidated Lease)	Docket No. 78-0473
(EAS Inquiry)	Docket No. 78-0531
(Dispute with GTE)	Docket No. 78-0576
(WUI vs. Continental Tel.)	Docket No. 79-0041
(Carle Clinic)	Docket No. 79-0132
(Private line rates)	Docket No. 79-0143
(Toll data)	Docket No. 79-0234
(Dataphone)	Docket No. 79-0237
(Com Key 718)	Docket No. 79-0365
(Complaint - switchboard)	Docket No. 79-0380
(Porta printer)	Docket No. 79-0381
(General rate case)	Docket No. 79-0438
(Certificate)	Docket No. 79-0501
(General rate case)	Docket No. 80-0010
(Other minor proceedings)	Docket No. various
- Home Telephone Company	Docket No. 80-0220
- Northwestern Telephone Company	
Local and EAS rates	Docket No. 79-0142
EAS	Docket No. 79-0519

INDIANA

- Public Service of Indiana (PSI)	
Depreciation issues	Cause No. 39584
- Indianapolis Power and Light Company	
Depreciation issues	Cause No. 39938

IOWA

- U S West Communications, Inc.	
Local Exchange Competition	Docket No. RMU-95-5
Local Network Interconnection	Docket No. RPU-95-10
General Rate Case	Docket No. RPU-95-11

KANSAS

- Southwestern Bell Telephone Company
Commission Investigation of the KUSF Docket No. 98-SWBT-677-GIT
- Rural Telephone Service Company
Audit and General rate proceeding Docket No. 00-RRLT-083-AUD
Request for supplemental KUSF Docket No. 00-RRLT-518-KSF
- Southern Kansas Telephone Company
Audit and General rate Proceeding Docket No. 01-SNKT-544-AUD

MAINE

- New England Telephone Company
General rate proceeding Docket No. 92-130

MARYLAND

- Chesapeake and Potomac Telephone Company
General rate proceeding Docket No. 7851
Cost Allocation Manual Case Case No. 8333
Cost Allocation Issues Case Case No. 8462
- Verizon Maryland
PICC rate case Case No. 8862
USF case Case No. 8745

MINNESOTA

- Access charge (all companies) Docket No. P-321/CI-83-203
- U. S. West Communications, Inc. (Northwestern Bell Telephone Co.)
Centrex/Centron proceeding Docket No. P-421/91-EM-1002
General rate proceeding Docket No. P-321/M-80-306
Centrex Dockets MPUC No. P-421/M-83-466
MPUC No. P-421/M-84-24
MPUC No. P-421/M-84-25
MPUC No. P-421/M-84-26
General rate proceeding MPUC No. P-421/GR-80-911
General rate proceeding MPUC No. P-421/GR-82-203
General rate case MPUC No. P-421/GR-83-600
WATS investigation MPUC No. P-421/CI-84-454
Access charge case MPUC No. P-421/CI-85-352
Access charge case MPUC No. P-421/M-86-53
Toll Compensation case MPUC No. P-999/CI-85-582
Private Line proceeding Docket No. P-421/M-86-508
- AT&T
Intrastate Interexchange Docket No. P-442/M-87-54

MISSISSIPPI

- South Central Bell
General rate filing Docket No. U-4415

MISSOURI

- Southwestern Bell
 - General rate proceeding TR-79-213
 - General rate proceeding TR-80-256
 - General rate proceeding TR-82-199
 - General rate proceeding TR-86-84
 - General rate proceeding TC-89-14, et al.
 - Alternative Regulation TC-93-224/TO-93-192
- United Telephone Company
 - Depreciation proceeding TR-93-181
- All companies
 - Extended Area Service TO-86-8
 - EMS investigation TO-87-131

NEW JERSEY

- New Jersey Bell Telephone Company
 - General rate proceeding Docket No. 802-135
 - General rate proceeding BPU No. 815-458
 - Phase I - General rate case OAL No. 3073-81
 - General rate case BPU No. 8211-1030
 - Division of regulated OAL No. PUC10506-82
 - from competitive services BPU No. 848-856
 - Customer Request Interrupt OAL No. PUC06250-84
 - BPU No. TO87050398
 - OAL No. PUC 08557-87
 - Docket No. TT 90060604

NEW MEXICO

- U.S. West Communications, Inc.
 - E-911 proceeding Docket No. 92-79-TC
 - General rate proceeding Docket No. 92-227-TC
 - General rate/depreciation proceeding Case No. 3008
 - Subsidy Case Case No. 3325
- VALOR Communications
 - Subsidy Case Case No. 3300

OHIO

- Ohio Bell Telephone Company
 - General rate proceeding Docket No. 79-1184-TP-AIR
 - General rate increase Docket No. 81-1433-TP-AIR
 - General rate increase Docket No. 83-300-TP-AIR
 - Access charges Docket No. 83-464-TP-AIR
- General Telephone of Ohio
 - General rate proceeding Docket No. 81-383-TP-AIR
- United Telephone Company
 - General rate proceeding Docket No. 81-627-TP-AIR

OKLAHOMA

- Public Service of Oklahoma
Depreciation case Cause No. 96-0000214

PENNSYLVANIA

- GTE North, Inc.
Interconnection proceeding Docket No. A-310125F002
- Bell Telephone Company of Pennsylvania
Alternative Regulation proceeding Docket No. P-00930715
Automatic Savings Docket No. R-953409
Rate Rebalance Docket No. R-00963550
- Enterprise Telephone Company
General rate proceeding Docket No. R-922317
- All companies
InterLATA Toll Service Invest. Docket No. I-910010
- GTE North and United Telephone Company
Local Calling Area Case Docket No. C-902815

SOUTH DAKOTA

- Northwestern Bell Telephone Company
General rate proceeding Docket No. F-3375

TENNESSEE

(on behalf of Time Warner Communications)

- BellSouth Telephone Company
Avoidable costs case Docket No. 96-00067

UTAH

- U.S. West Communications (Mountain Bell Telephone Company)
General rate case Docket No. 84-049-01
General rate case Docket No. 88-049-07
800 Services case Docket No. 90-049-05
General rate case/
incentive regulation Docket No. 90-049-06/90-
049-03
General rate case Docket No. 92-049-07
General rate case Docket No. 95-049-05
General rate case Docket No. 97-049-08

VIRGIN ISLANDS, U.S.

- Virgin Islands Telephone Company
General rate case Docket No. 264
General rate case Docket No. 277
General rate case Docket No. 314
General rate case Docket No. 316

VIRGINIA

- General Telephone Company of the South
Jurisdictional allocations
Separations

Case No. PUC870029

Case No. PUC950019

WASHINGTON

- US West Communications, Inc.
Interconnection case
General rate case
- All Companies-

Docket No. UT-960369

Docket No. UT-950200

Analyzed the local calling
areas in the State

WISCONSIN

- Wisconsin Bell Telephone Company
Private line rate proceeding
General rate proceeding

Docket No. 6720-TR-21

Docket No. 6720-TR-34

STAFF RECOMMENDED RATES

		Recurring Fixed	Recurring	Non-Recurring	
7.0 Interconnection					
7.6 Local Traffic					
7.6.1 End office call termination, per minute of use			\$0.00147		
7.6.2 Tandem Switched Transport					
7.6.2.1 Tandem Switching, per Minute of Use			\$0.00059		
7.6.2.1 Tandem Transmission, per Minute of Use, all Mileage bands					
0 to 8 miles, per mile, per minute		\$0.00048	\$0.00008		
8 to 25 miles, per mile, per minute		\$0.00048	\$0.00004		
25 to 50 miles, per mile, per minute		\$0.00048	\$0.00002		
Over 50 miles, per mile, per minute		\$0.00048	\$0.00001		
8.0 Collocation					
8.8 Remote Collocation					
Space (per Standard Mounting Unit)			\$0.63000	\$406.50	
FDI Terminations (per binder group [25-PR])			\$0.71000	\$485.92	
9.0 Unbundled Network Elements (UNES)					
9.1.1 Local Switching					
9.1.1.1 Analog Line Side Port, First Port	\$1.61 (1)			\$42.58 (1)	
9.1.1.2 Analog Line Side Port, Each Additional	\$1.61 (1)			\$42.58 (1)	
9.1.1.3 Local Usage, Per Minute of Use		\$0.00			
9.1.1.4 Vertical Features					
10XXX Direct Dialed Blocking		\$0.00		\$0.00	
Account Codes - per system		\$0.00		\$0.00	(2)
Attendant Access Line - per station line		\$0.00		\$0.00	(2)
Audible Message Waiting		\$0.00		\$0.00	(2)
Authorization Codes - per system		\$0.00		\$0.00	(2)
Auto Callback		\$0.00		\$0.00	
Automatic Line		\$0.00		\$0.00	(2)
Automatic Route Selection-Common Eq. Per system		\$0.00		\$0.00	(2)
Blocking of Day per call services		\$0.00		\$0.00	
Bridging		\$0.00		\$0.00	(2)
Call Drop		\$0.00		\$0.00	(2)
Call Exclusion - Automatic		\$0.00		\$0.00	(2)
Call Exclusion - Manual		\$0.00		\$0.00	(2)
Call Forward Don't Answer - All Calls		\$0.00		\$0.00	
Call Forwarding Incoming Only		\$0.00		\$0.00	
Call Forwarding Intra Group Only		\$0.00		\$0.00	
Call Forwarding Variable Remote		\$0.00		\$0.00	
Call Forwarding Busy Line (Expanded)		\$0.00		\$0.00	
Call Forwarding Busy Line (External)		\$0.00		\$0.00	
Call Forwarding Busy Line (External) Don't Answer		\$0.00		\$0.00	
Call Forwarding Busy Line (Overflow)		\$0.00		\$0.00	
Call Forwarding Busy Line (Overflow) Don't Answer		\$0.00		\$0.00	
Call Forwarding Busy Line (Programmable)		\$0.00		\$0.00	(2)
Call Forwarding Busy Line (Don't Answer Programmable)		\$0.00		\$0.00	(2)
CF Don't Answer/CF Busy Customer Programmable - Per Line		\$0.00		\$0.00	(2)
Call Forwarding Busy Line/Don't Answer (Expanded)		\$0.00		\$0.00	(2)

STAFF RECOMMENDED RATES

	Recurring Fixed	Recurring	Non-Recurring
Call Forwarding: Don't Answer		\$0.00	(2)
Call Forwarding: Don't Answer (Expanded)		\$0.00	\$0.00
Call Forwarding: Don't Answer (Programmable)		\$0.00	\$0.00
Call Forwarding: Variable		\$0.00	\$0.00
Call Forwarding: Variable - no call complete option		\$0.00	\$0.00
Call Hold		\$0.00	\$0.00
Call Hold/3-Way/Call Transfer		\$0.00	\$0.00
Call Park (Basic - Store & Retrieve)		\$0.00	\$0.00
Call Pickup		\$0.00	\$0.00
Call Transfer		\$0.00	\$0.00
Call Waiting Dial Originating		\$0.00	(2)
Call Waiting Indication - per timing state		\$0.00	\$0.00
Call Waiting Originating		\$0.00	\$0.00
Call Waiting Terminating - All Calls		\$0.00	\$0.00
Call Waiting Terminating - Incoming Only		\$0.00	\$0.00
Call Waiting/Cancel Call Waiting		\$0.00	\$0.00
Centrex Common Equipment		\$0.00	(2)
Centrex Management System (CMS)		\$0.00	\$0.00
Centrex Plus DID numbers per number		\$0.00	\$0.00
Centrex Plus to Centrex Plus		\$0.00	\$0.00
Centrex Plus to IC Carrier		\$0.00	\$0.00
Centrex Plus to PBX/Key Blocked		\$0.00	\$0.00
Centrex Plus to PBX/Key Non-Blocked		\$0.00	\$0.00
CFBL - All Calls		\$0.00	(2)
CFBL - Incoming Only		\$0.00	\$0.00
CFBL Incoming Only		\$0.00	\$0.00
CLASS - Anonymous Call Rejection		\$0.00	(2)
CLASS - Call Trace		\$0.00	\$0.00
CLASS - Call Waiting ID		\$0.00	\$0.00
CLASS - Calling Name & Number		\$0.00	\$0.00
CLASS - Calling Number Delivery		\$0.00	\$0.00
CLASS - Calling Number Delivery - Blocking		\$0.00	(2)
CLASS - Continuous Redial		\$0.00	(2)
CLASS - Last Call Return		\$0.00	(2)
CLASS - Priority Calling		\$0.00	(2)
CLASS - Selective Call Forwarding		\$0.00	(2)
CLASS - Selective Call Rejection		\$0.00	(2)
Common Equipment per 1.544 Mbps facility (DS1)		\$0.00	0
Conference Calling - Meet Me		\$0.00	(2)
Conference Calling - Preset		\$0.00	(2)
Custom Ringing First Line (Short/Long/Short)		\$0.00	\$0.00
Custom Ringing First Line (Short/Long/Short)		\$0.00	\$0.00
Custom Ringing Second Line (Short/Long/Short)		\$0.00	\$0.00
Custom Ringing Second Line (Short/Long/Short)		\$0.00	\$0.00
Custom Ringing Third Line (Short/Long/Short)		\$0.00	\$0.00
Custom Ringing Third Line (Short/Long/Short)		\$0.00	\$0.00
Custom Ringing Third Line (Short/Long/Short)		\$0.00	\$0.00
Custom Ringing Third Line (Short/Long/Short)		\$0.00	\$0.00
Data Call Protection (DMS 100)		\$0.00	(2)
Dr. Sta. Set/Busy Lamp Fld per arrangement		\$0.00	(2)
Directed Call Pickup with Barge-in		\$0.00	(2)

STAFF RECOMMENDED RATES

	Recurring Fixed	Recurring	Non-Recurring
Directed Call Pickup without Barge-in		\$0.00	(2)
Distinctive Ring/Distinctive Call Waiting		\$0.00	(2)
Distinctive Ringing		\$0.00	\$0.00
EBS - Set Interface - per station line		\$0.00	\$0.00
Executive Busy Override		\$0.00	\$0.00
Expensive Route Warning Tone - per system		\$0.00	(2)
Facility Restriction Level - per system		\$0.00	(2)
Feature Display		\$0.00	\$0.00
Group Intercom		\$0.00	(2)
Hot line - per line		\$0.00	(2)
Hunting: Multiposition Circular Hunting		\$0.00	\$0.00
Hunting: Multiposition Hunt Queuing		\$0.00	(2)
Hunting: Multiposition Series Hunting		\$0.00	\$0.00
Hunting: Multiposition with Announcement in Queue		\$0.00	(2)
Hunting: Multiposition with Music in Queue		\$0.00	\$0.00
Incoming Calls Barred		\$0.00	\$0.00
International Direct Dial Blocking		\$0.00	(2)
ISDN Short Hunt		\$0.00	\$0.00
Line Side Answer Supervision		\$0.00	(2)
Loudspeaker Paging - per trunk group		\$0.00	(2)
Make Busy Arrangements - per group		\$0.00	(2)
Make Busy Arrangements - per line		\$0.00	(2)
Message Center - per main station line		\$0.00	\$0.00
Message Waiting Indication Audible/visual		\$0.00	(2)
Message Waiting visual		\$0.00	(2)
Music On Hold - per system		\$0.00	(2)
Network Speed Call		\$0.00	\$0.00
Night Service Arrangement		\$0.00	\$0.00
Outgoing Calls Barred		\$0.00	\$0.00
Outgoing Trunk Queuing		\$0.00	(2)
Privacy Release		\$0.00	(2)
Query Time		\$0.00	\$0.00
Speed Calling 1 Digit Controller		\$0.00	\$0.00
Speed Calling 1 Digit User		\$0.00	\$0.00
Speed Calling 1# List Individual		\$0.00	\$0.00
Speed Calling 2 Digit Controller		\$0.00	\$0.00
Speed Calling 2 Digit User		\$0.00	\$0.00
Speed Calling 2# List Individual		\$0.00	\$0.00
Speed Calling 3# List Individual		\$0.00	\$0.00
Speed Calling 8 Number		\$0.00	\$0.00
Speed Calling 8 Number		\$0.00	(2)
Station Camp-On Service - per main station		\$0.00	\$0.00
Station Dial Conferencing (6 Way)		\$0.00	\$0.00
Station Message Detail Recording (SMOFR)		\$0.00	\$0.00
Three Way Calling		\$0.00	\$0.00
Time and Date Display		\$0.00	(2)
Time of Day Control for ARS - per system		\$0.00	(2)
Time of Day NCOS Update		\$0.00	(2)
Toll Restriction Service		\$0.00	\$0.00
Trunk Answer Any Station		\$0.00	\$0.00
Trunk Verification from Designated Station		\$0.00	(2)
UCD in hunt group - per line		\$0.00	(2)

STAFF RECOMMENDED RATES

	Recurring Fixed	Recurring	Non-Recurring	
UCD with Music After Delay		\$0.00	\$0.00	
CMS - System establishment - Initial Installation			(2)	
CMS - System establishment - Subsequent Installation			(2)	
CMS - Packet Control Capability, per system			(2)	
SMDR-P - Service establishment charge, Initial Installation			(2)	
SMDR-P - Archived Data			(2)	
9.11.5 Subsequent Order Charge			\$0.00	
9.11.6 Digital Line Side Port (Supporting BRI ISDN)				
First Port		NR	NR	
Each Additional Port		NR	NR	
9.11.7 Digital Trunk Ports				
DS1 Local Message Trunk Port		NR	NR	
Message Trunk Group, First Trunk		NR	NR	
Message Trunk Group, Each Additional		NR	NR	
DS1 PRI ISDN Trunk Port		NR	NR	
DS1/DID Trunk Port		NR	NR	
9.11.8 DSO Analog Trunk Port				
First Port			\$42.58	
Each Additional Port			\$42.58 or less	
9.12 Customized Routing				
9.12.1 Development of Custom Line Class Code DA or Operator Sys. Routing Only			NR	
9.12.2 Installation Charge, per Switch DA or Operator Sys. Routing Only			NR	
9.12.3 All Other Custom Routing			NR	
9.24 Unbundled Packet Switching				
9.24.1 Unbundled Packet Switch Customer Channel		NR	\$0.00	
DSLAM Functionality		NR	\$0.00	
9.24.2 Customer Channel and Shared Distribution Loop		\$0.00	NR	
Customer Channel and CLEC Provided Loop		\$0.00	NR	
9.24.3 Unbundled Packet Switch Port		NR	NR	
DS1 Interface		NR	NR	
DS3 Interface		NR	NR	
(1) Continue present rate.				
(2) Staff is not making a specific recommendation for these non-recurring rates for features. However, they generally should be significantly less than the Qwest proposal. Qwest proposes non-recurring charges for these elements. The Qwest studies generally assume significant manual efforts. In Phase II, joint intervenors proposed a zero non-recurring charge for features (AT&T Exhibit MH-1). Their studies generally assumed automated interface. Qwest rates would be reduced by 13% if the only correction was to the overhead factors. With other adjustments, the Staff recommends a non-recurring rate for analog line side port that is approximately 30% of the Qwest proposed non-recurring rate.				
NR*				
Indicates Staff is presenting no recommendation on this rate.				

Cost results from the HAI 5.2a Model using the ACC inputs from ACC Decision No. 60635, and for those inputs not addressed by the ACC, using the inputs the FCC adopted in its 10th Order (FCC Order 99-304).

	Annual Cost	Units	Unit Cost
End office switching	\$ 130,175,079	2,959,791	1.10 per line/month
Line Port	\$ 39,052,524	switched lines	0.00147 per actual minute (for rate per DEM, see "Cost detail" sheet)
Non-Line Port	\$ 91,122,555	62,141,633,323 actual minutes	
Signaling network elements	\$ 5,012,332	511 links	26.06 per link per month
Links	\$ 172,224	TCAP+ISUP msgs	0.00006 per signaling message
STP	\$ 2,537,787	2,115,313,400 TCAP queries	0.00109 per query
SCP	\$ 2,302,321		
Transport network elements			
<i>Dedicated</i>			
Sw+Sp Transport	\$ 8,745,085	351,789 trunks	2.07 per DS-0 equivalent per month
Switched	\$ 2,443,640	138,464 trunks	0.00021 per minute
Special	\$ 5,305,455	213,325 trunks	
Transmission Terminal	\$ 19,263,003	351,789 trunks	4.56 per DS-0 equivalent per month
			0.00045 per minute
			0.00065 total per minute
<i>Common</i>			
Transport	\$ 1,319,573	3,703,400,627 minutes	0.00034 per minute per leg (orig or term)
Transmission Terminal	\$ 1,875,906	3,703,400,627 minutes	0.00048 per minute
			0.00061 total per minute
<i>Direct</i>			
Transport	\$ 4,963,127	16,120,464,725 minutes	0.00031 per minute
Transmission Terminal	\$ 8,550,617	16,120,464,725 minutes	0.00053 per minute
			0.00084 total per minute
Tandem switch	\$ 1,963,948	3,322,868,975 minutes	0.00059 per minute
Operator systems	\$ 6,414,122		
Public Telephones	\$ 4,919,883		
Total (w/ Public)	\$ 752,434,212		
Total cost of switched network elements (w/o Public)	\$ 19.51 per line/month		

SCHEDULE WD-3 CONTAINS INFORMATION CLAIMED TO BE
PROPRIETARY BY QWEST. THEREFORE, IT HAS BEEN DELETED
FROM THIS TESTIMONY

SCHEDULE WD-4 CONTAINS INFORMATION CLAIMED TO BE
PROPRIETARY BY QWEST. THEREFORE, IT HAS BEEN DELETED
FROM THIS TESTIMONY

ATT/Worldcom/XO

**Qwest
Proposed
(Exhibit
RHB-1)**

**Testimony
May 18, 2001
ATT Exhibit
MH-1)**

Proposed Rate

9.11.1 Analog Line Side Port - First Port

9.11.2 Analog Line Side Port - Each Additional

\$42.58	\$145.57	\$1.68	\$1.57	\$42.58
\$42.58	\$95.75	NA	NA	\$42.58

9.11.8	DSO Analog Trunk Port				
	First Port	\$42.58	\$123.11	\$1.68	\$42.58
	Each Additional	\$42.58	\$28.75	NA	\$42.58 or less
				NA	
					\$1.57